





Claim 11 (original): The object-oriented virtual machine interface of claim 1 wherein a software object in said plurality of software objects is an uplink object or a downlink object.

Claim 12 (presently amended): The object-oriented virtual machine interface of claim 1,

said plurality of software objects comprising a searcher object, a code generation unit object, a finger object, a matched filter object, a combiner object, an uplink object and a downlink object; and

said plurality of kernels comprising a searcher kernel, a code generation unit kernel, a finger kernel, a matched filter kernel, a combiner kernel, an uplink kernel and a downlink kernel; wherein:

said searcher object is associated with said searcher kernel;

said code generation unit object is associated with said code generation unit kernel;

said finger object is associated with said finger kernel;

said matched filter object is associated with said matched filter kernel; said combiner object is associated with said combiner kernel;

said uplink object is associated with said uplink kernel; and

~~and~~ said downlink object is associated with said downlink kernel.





Claim 21 (original): The object-oriented reconfigurable system of claim 20 further comprising:

a resource allocator configured to receive said machine-readable instructions, and issue a command signal to control a kernel in said plurality of kernels.

Claim 22 (original): The object-oriented reconfigurable system of claim 13 wherein a software object in said plurality of software objects is a searcher object, a code generation unit object a finger object, an uplink object or a downlink object.

Claim 23 (original): The object-oriented reconfigurable system of claim 13,

said plurality of software objects in said first subset of said software objects comprising a searcher object, a code generation unit object, a finger object, a matched filter object, a combiner object, an uplink object and a downlink object; and

said plurality of kernels comprising a searcher kernel, a code generation unit kernel, a finger kernel, a matched filter kernel, a combiner kernel, an uplink kernel and a downlink kernel; wherein:

said searcher object is associated with said searcher kernel;

said code generation unit object is associated with said code generation unit kernel;

said finger object is associated with said finger kernel;

said matched filter object is associated with said matched filter kernel;

said combiner object is associated with said combiner kernel;

said uplink object is associated with said uplink kernel; and

and said downlink object is associated with said downlink kernel.

Claim 24 (original): The object-oriented reconfigurable system of claim 13 wherein said plurality of kernels comprise a searcher kernel, a code generation unit kernel, a finger kernel, an uplink kernel and a downlink kernel.

Claim 25 (original): The object-oriented reconfigurable system of claim 13 wherein a kernel in said plurality of kernels is configured to operate under a CDMA protocol.

Claim 26 (original): The object-oriented reconfigurable system of claim 25 wherein said CDMA protocol is selected from the group consisting of IS-95 CDMA, IS-95B CDMA, CDMA TIA IS2000, TIA IS 2000A, wideband CDMA (WCDMA), cdma2000, and ARIB WCDMA.

Claim 27 (original): The object-oriented reconfigurable system of claim 13 wherein a kernel in said plurality of kernels is configured to operate under a TDMA protocol.

Claim 28 (original): The object-oriented reconfigurable system of claim 27 wherein said TDMA protocol is IS-136 TDMA.

Claim 29 (original): A method of communication using an object oriented virtual machine interface and a reconfigurable multi-protocol communication apparatus, said reconfigurable multi-protocol communication apparatus including a plurality of kernels and an interconnect structure for interconnecting said plurality of kernels, said method comprising:

creating a plurality of software objects, each software object in said plurality of software objects corresponding to a different kernel in said plurality of kernels;

assigning an attribute value to a software object in said plurality of software objects in accordance with a communication protocol; and

configuring the kernel associated with said software object in accordance with said attribute value.

Claim 30 (original): The method of claim 29 wherein at least two software objects in said plurality of software objects have a hierarchical relationship.

Claim 31 (original): The method of claim 29 further comprising developing an application program that includes software calls to said plurality of software objects.

Claim 32 (original): The method of claim 31 further comprising developing a software virtual machine to process said application program.



Claim 33 (original): The method of claim 32 further comprising translating said application program into a program executable on said software virtual machine.

Claim 34 (original): The method of claim 33 further comprising issuing, from said software virtual machine, an instruction for controlling a kernel in said plurality of kernels.

Claim 35 (original) The method of claim 29 further comprising:

forming an application program interface comprising a plurality of software routines, said plurality of software routines representing a plurality of communication protocols, wherein said plurality of software routines comprise software calls to said plurality of software objects.

Claim 36 (original): The method of claim 29 further comprising developing an application program comprising software calls to said plurality of software routines.

Claim 37 (original): A computer program product for a reconfigurable object-oriented apparatus comprising a plurality of kernels and an interconnect structure for interconnecting said plurality of kernels, the computer program product comprising a computer readable storage medium and a computer program mechanism embedded therein, the computer program mechanism comprising:

instructions for instantiating a plurality of software objects, each software object in said plurality of software objects corresponding to a different kernel in said plurality of kernels such that a change to said software object results in a change in a state of said corresponding different kernel;





producing machine readable data capable of reconfiguring said reconfigurable wireless network communication apparatus in accordance with said communication protocol.

Claim 44 (original): The method of claim 43 wherein an object-oriented virtual machine interface comprises a plurality of software objects, each software object in said plurality of software objects associated with a different kernel in said plurality of kernels so that a change to a software object in said plurality of software objects results in a change in said kernel associated with said software object;

said machine readable data including a first software object selected from said plurality of software objects.

Claim 45 (original): The method of claim 44 wherein said first software object is a function or procedure.

Claim 46 (original): A computer program product for use in conjunction with a reconfigurable wireless network communication apparatus, said reconfigurable apparatus comprising a plurality of kernels, the computer program product comprising a computer readable storage medium and a computer program mechanism embedded therein, the computer program mechanism comprising:

a program module for reconfiguring said reconfigurable wireless network communication apparatus comprising:

instructions for parsing an application program that designates a communication protocol; and

instructions for producing machine readable data capable of reconfiguring said reconfigurable network communication apparatus in accordance with said communication protocol.

Claim 47 (original): The computer program product of claim 46, further including:

an object-oriented virtual machine module comprising a plurality of software objects, each software object in said plurality of software objects associated with a different kernel in said plurality of kernels so that a change to a software object in said plurality of software objects results in a change in said kernel associated with said software object; wherein

said machine readable data include a first software object selected from said plurality of software objects.

Claim 48 (original): The computer program product of claim 47 wherein said first software object is a function or procedure.

Claim 49 (presently amended): The method of claim ~~4~~29 wherein a software object in said plurality of software objects is associated with at least two kernels in said plurality of kernels.

Claim 50 (presently amended): The method of claim ~~4~~29 wherein at least two kernels in said plurality of kernels is associated with the same software object in said plurality of software objects.

